GEOGRAPHIC SCHOOL BULLETINS

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VOL. XXXV, NO. 14, JANUARY 14, 1957 . . . *To Know This World, Its Life*

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Quiet Macau would make a big noise if this Chinese girl set off these bundles of firecrackers. They are one of the few exports of the little Portuguese colony on the China coast. Perhaps a few will pop this year to mark Macau's 400th birthday. ***See story, page 162.***

NATIONAL GEOGRAPHIC PHOTOGRAPHER
J. BAYLOR ROBERTS

☆ *Inauguration Day . . .*

Next week seven picture pages honor the city of Presidents, Washington, D. C.

E. R. GRIFFITH

ALGIERS (below) bunches cube-shaped buildings in tiers above its harbor. Near the top of the hill, stone steps (above) climb dim passageways of the Kasbah, crowded with Arabs and Berbers.

of such agricultural products as wheat, fruit, grapes for wine.

Behind the Tell loom chains of the Atlas Mountains, rich in iron, zinc, and copper. Beyond, bleak desert territories of the Sahara make up nine tenths of Algeria, rolling south to the frontiers of French West Africa.

While the southern territories are under a French Governor-General, the Northern Territory elects deputies to the French National Assembly, exactly as if a part of Metropolitan France. French *colons* own most of the arable land and control vital wine production. French manufactured goods stock Algerian stores. France absorbs about 72 per cent of Algeria's exports.

France has sunk deep cultural roots into the Northern Territory and thinks of it as a political extension of the Republic itself. Yet Arabs and Berbers, who are Moslems, form some 85 per cent of the population. Their numbers are multiplying, bringing serious problems of unemployment, shortage of houses and schools. Their dis-

AIR FRANCE

MAYNARD OWEN WILLIAMS

Desert Algeria Shapes Its Destiny

TRAILS converge on a sleepy desert town in French-dominated Algeria. Arabs haggle in a market square. Donkeys forage in the dust of Ghardaïa.

Paris with its gay boulevards seems remote. Yet Paris has cause to worry about the one thing in Algeria that blazes hotter than its sun—the flame of independence. Revolt-torn and bitter, Algeria has become a focal point of smoldering tensions that grow increasingly explosive throughout North Africa.

Nearly four times as large as France, Algeria divides into three sections. A narrow fertile strip, the Tell, stretches 650 miles along the Mediterranean between Tunisia and Morocco. Here, dry seasons of oppressive heat give way to months of rain that revive Algeria's only fertile acres. Here grows a wealth

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NATIONAL GEOGRAPHIC PHOTOGRAPHER WOODBRIDGE WILLIAMS

Longhorns Earned Texas Its First Million

LOOK OUT, son, that there cow critter's not overly sociable. Ever since the Spaniards brought longhorns to the Southwest in 1521, they've took sort of natural to the prairie and never wasted love on humans. By the time us Texans began raising them they'd grown tall, strong, and tough as prickly pear.

Longhorns are too ornery to be bothered by the tick that gives other cattle Texas fever. They thrive in blazing heat and blue northers, on lean grazing and half-dry water holes. When we drove them north to Kansas and the railroad, longhorns ambled along on lanky legs, sometimes reaching Dodge City as lean as coyotes. You can't see short-legged Herefords making that trip, can you?

That's what we've got on the range now—Herefords and fancy Angus and big-shouldered Brahmas and sleek Santa Gertrudis. They shore produce beef—tender and lots of it—but they haven't got the *personality* of the longhorn who taught us all we know about cattle. Without that man-hating, independent-minded old cuss we'd never have built Texas, or any of the cattle country. His meat fed us, then made us rich. His hide served instead of nails to bind our homes together. We made ropes of it, and hats, and even playing cards.

Longhorns just about followed the buffalo to the last roundup. But Wichita Mountains National Wildlife Refuge in Oklahoma grazes a few. And some of us ranchers keep a few critters—as pets, you might say. When we see their horns, sometimes eight feet across, we remember that this here's Texas, son, where everything grows big and tough and independent.—E. P.

UMI

DONALD GILMORE

MEN WEAR VEILS in southern Algeria's mountainous Ahaggar area. Traditional among nomad Tuaregs, veils are often blue, protect faces from desert wind, sand, and sun

content has added white heat to Algeria's aggressive bids for independence—even though France tries hard to improve living conditions.

Algeria's history stretches turbulently back to pre-Christian eras. Roman ships voyaged the blue Mediterranean loaded with oranges and olive oil from conquered Algeria. In such ancient port cities as Bona, orange groves still shade fluted shafts of ruined columns and statues of Aphrodite.

Under Moslem rule, the Mediterranean port of Algiers once prospered on slave trade and contraband. The French came in 1830, superimposing European culture. Today, prosperous Arabs sip coffee along with Frenchmen at "Parisian" sidewalk cafés. But in abrupt contrast, the passageway-streets of such old districts as the Moorish Kasbah seem to lock in the past. Twisting and dark, teeming, too narrow for vehicles, they guard an oriental mystery.

West of Algiers, directly across the Mediterranean from Cartagena, Spain, the seaport and trade center of Oran grows in size and importance. Roads diverge from it in all directions. Trains push 471 miles into the Sahara, linking the port with Africa's interior. Old, yet gleamingly new in appearance, Oran was a great city in the 16th century, was destroyed by earthquake in 1791, and has been largely rebuilt by the French. Completion of the trans-Saharan railway should make Oran one of the Mediterranean's most valuable ports.

What of the emptiness beyond the Atlas Mountains? Much of this area, three times the size of Texas with a population about as large as Rhode Island, is unknown, a lifeless ocean of wind-carved sands or weird rock mountains. A few towns cling to oases. Some engineers think oil may underlie Africa's desert as it does Saudi Arabia's. If so, the bleak reaches of the Sahara will play an even greater part in fulfilling Algeria's destiny.—J.A.

National Geographic References: ***Map***—Northern Africa (paper, 50¢; fabric, $1.00).
Magazine—February, 1949, "Oasis-hopping in the Sahara" (75¢); July, 1943, "Americans on the Barbary Coast" ($1.00); January, 1943, "Eastward from Gibraltar" ($1.00).
School Bulletins—Nov. 9, 1953, "Camels Lure Crowds to Sahara Oasis" (out of print).

Trotting coolies bend under mountainous loads of fruit and vegetables. Cyclists slither between pedestrians, their bikes laden with strings of live ducks. Guards on both sides of the border stand aside to let the steady stream pass. Macau must eat. Its food comes entirely from outside the colony.

Macau lacks land to grow crops. Its industries are mostly small, hand-operated enterprises—match and firecracker factories, plants where fruit is preserved and sauces concocted. For all its long life the colony has depended on trade for its income. Now trade is curtailed.

One Chinese explained Macau's economy by nodding toward a narrow street where drying clothes flapped between buildings.

"We take in each other's washing," he said. Nam Tung knows of other traditional sources of income. Any time he walks through those cluttered lanes he hears the click of rolling dice, the murmur of fan-tan players. Gambling thrives in Macau as in Las Vegas.

But Nam Tung also knows that the size of bets is getting smaller lately. Money is scarce. More and more people are taking the ferry to Hong Kong and just staying there, swapping one precarious perch on the communist coast for another.

Sometimes Nam Tung thinks that he, too, will go, begging enough money for his fare. But life for him is still good in Macau. Bright signs flash above the streets. Flowers blaze beside the fading pastel colors of old stucco buildings. The sun is warm; the monsoon stirs trees below Penha Hill where an old Portuguese church stabs the sky. Junks ply sheltered waters gathering a harvest of fish. Nam Tung's fellow citizens haggle and laugh and parade and sometimes drop him a coin.

Communists? Nam Tung shrugs. They're still three miles away.—E.P.

UMI

Macau

Portugal's Colony Marks 400th Year

IN the shade of a wide-brimmed hat that holds pencil and matchbox, Nam Tung rests beside a broad avenue. Glass and concrete buildings rise around him. White-suited Europeans walk past him on the way to offices and gentlemen's clubs.

But Nam Tung feels utterly at home. He was born here in Macau, tiny Portuguese toe hold on the coast of China. His ancestors lived here long before the first Portuguese merchant-adventurers whipped the local pirates and earned the right to set up a trading post on this mysterious oriental shore—the first foreign colony in the Far East.

That was just 400 years ago. Many times, since 1557, the Portuguese flag came within an ace of being hauled down. But, clinging to its neutrality, Macau avoided Japanese invasion in World War II. A naval battle beat off a Dutch attack in the 17th century. And even when Spain ruled Portugal, this colony alone kept flying the old flag.

Today, the first western foothold in China is one of the last. Only Macau and Britain's colony of Hong Kong (GSB, Dec. 17, 1956), 40 miles away across the Pearl River estuary, remain—twin slits in the bamboo curtain. Beyond Macau's roof tops (above), beyond its inner harbor, loom China's coastal mountains, the outer barrier of the communist domain.

Nam Tung seldom bothers to look that way. His life centers in Macau's six square miles—a tenuous peninsula and two islands. Here dwell some 188,000 people, 99 per cent of them Chinese. Here home workshops turn out "Yan Kee Boy" firecrackers for a strange foreign festival that takes place on the fourth of July (see cover). Every day Nam Tung watches traffic pour through the Barrier Gate (below), doorway to China.

Photographs by National Geographic Photographer J. Baylor Roberts

BRUNO STEFANI

Carrara marble in Calabria, and in Galway's carboniferous limestone. The snows of Kilimanjaro (19,340 ft.) in Tanganyika, overlie deposits. Sicily's important holdings are in Miocene marls and limestone. Almost all is recovered by conventional mining methods. Sometimes the sulphur is cast into molds, as shown left in the mine at Grattacalda. Lercara Friddi, pictured below, has the largest such mine on the island.

In Japan and Chile, sulphur is of volcanic origin. In the Andes, Chilean sulphur miners suffer through bitter cold and violent winds at altitudes of 13,000 to 20,000 feet to get the yellow element.

The Bible calls sulphur "brimstone"—a reeking symbol of wickedness. For centuries it was associated with the fires of the underworld. A profane person still is said to use "sulphurous language." Egyptian paintings of about 1600 B.C. have colors that could come only from sulphur compounds. Roman warriors used sulphur to make incendiary missiles.

Alchemists, trying to make gold, experimented with the yellow "earth." Their spirit of adventure is shared by every boy who owns a chemistry set and wrinkles his nose at the noxious smell of burning sulphur.—S.H.

THREE LIONS

Sulphur

Mined for Centuries
It Still Serves Man

FREEPORT SULPHUR CO.

IN Louisiana a huge steam shovel takes a hungry bite from a mountainous golden yellow pile. It's more sulphur for market, more specifically for YOU. When you start your day with bathing, breakfast, vitamins, scanning the paper, and driving to school you've relied on sulphur. Nature hoards it for humans in the earth's crust, in nearly all animal and plant life, and in the oceans. More comes down to earth in screaming meteors.

The element—its chemical symbol is S—fills a multitude of uses beyond that sulphur-'n-molasses spring tonic earlier generations of children detested. Clear, oily sulphuric acid is so necessary to industry that its consumption rate reflects the national economy. Thirty-two thousand commonly used articles contain sulphur, among them tooth paste, soap, printing inks, insecticides, bleaches, vitamin B^1, plastics, matches, explosives, special steel, textiles, disinfectants, and dyes. Sulphur is in the very eyes you read this with; light acts on sulphur compounds in the retina to produce vision.

Although generously distributed through the earth's crust, considerable quantities of the element are chemically combined with other things, iron for example. But production of free sulphur from ore is expensive and inefficient. Miners look for deposits of pure, uncombined sulphur.

Until 1903, rich sources on the island of Sicily enjoyed a virtual production monopoly. Then came the Frasch process to tap deposits below the marshy land of the United States Gulf Coast. Through soil too soft for mine tunnels, deep wells probe down to the stone foundations containing the element.

Each well consists of three pipes, one inside another. Superheated water is forced down the outside pipe to heat the sulphur and turn it into a brownish-yellow liquid. Compressed air surges down the smallest pipe and drives the valuable liquid up the middle pipe.

On the surface the sulphur cools in plateaus of perhaps 500,000 tons each. "Thermos bottle" barges load some, keeping it hot and liquid all the way to manufacturing plants. This hot water mining produced some 5,700,000 tons in the United States last year. Another 1,200,000 tons was recovered as a by-product of other industries.

Sulphur deposits crop up in Chile, Japan, Peru, and Russia. Sulphur lies in

sank to saddlebags when creeks overflowed; some mired helplessly in the stiff clay bottoms and were left to die. Campfires blazed at night against the shaggy Trace sides to frighten wolves and bears. Good marksmen brought down game. But mostly the wayfarers poked into bags for rice, dried beef, bacon, flour, coffee, and a hardtack biscuit called "travelers' bread" obtained from a Spanish baker in Natchez.

After the Federal government began improvements of the Trace around 1800, hostelries called "stands" sprang up. Each offered its own peculiar comforts and discomforts. A man could bunk for 12½ cents a night—but he might wake up with a lump on his head and his money belt gone. Hosts advertised "bacon, biscuit, etc., for the convenience of those going into the wilderness." One John McCollum nailed a sign to

U. S. NATIONAL PARK SERVICE

EROSION AND YEARS OF USE wore down this section of the Natchez Trace. Somber forests are little changed from days when "Alligator-Horses" fought off Indians, outlaws

Friendly Indians provided corn. It was monotonous fare, torturous walking, but better than spending 50 silver dollars for an Indian pony.

Despite everything, their spirits soared; tedium broke as they sang:

"And if a daring foe annoys
No matter what his force is,
We'll show him that Kentucky boys
Are Alligator-Horses."

a China tree proclaiming "Entertainment for man and baste."

History hangs a question mark over Grinders Stand in Tennessee. Meriwether Lewis of the Lewis and Clark exploring team died a violent death there in 1809. Was he murdered; by whom, and why? Other Trace travelers left footprints in history—Andrew Jackson, The Marquis de Lafayette,

UMI

Natchez Trace

THE PURR of automobiles has broken the long silence of the Natchez Trace. Motorists now clip along sections of the old 500-mile trail between Nashville, Tennessee, and Natchez, Mississippi, as though no painted Indian or buckskinned frontiersman had ever laid a moccasin upon it. Built by the National Park Service, the new road will take cars through Tennessee, Alabama, and Mississippi with a speed that would amaze "Walking Johnson." This foot traveler of 150 years ago claimed he beat the post rider to Nashville.

Wandering bison first marked out the Trace between Mississippi River swamplands and the salt licks where Nashville now stands. Choctaws, sun-worshiping Natchez, and warring Chickasaws followed the path. De Soto groped along it in search of gold.

As farms and cottage industries took root west of the Alleghenies early in the 19th century, pioneers learned to float goods down the Mississippi to New Orleans, for shipment east. But poling empty flatboats back upstream was hard work. It was easier to sell the boats and walk back to Nashville. A ready-made trail pointed the way—the Natchez Trace.

The rough and ready boatmen who walked the Trace called themselves "Alligator-Horses"—half rivermen, half landsmen. They strewed the path with fights. They boasted of "wading the Mississippi," "leaping the Ohio," and "whipping their weight in wildcats." Legendary Mike Fink became the roughest of them all.

Famed ornithologist Alexander Wilson described them as "dirty as Hottentots; their dress a shirt and trowsers of canvass, black, greasy, and sometimes in tatters; the skin burnt wherever exposed to the sun; each with a budget [sack], wrapt up in an old blanket; their beards, eighteen days old added to the singularity of their appearance which was altogether savage."

They swaggered along in bands of 15 or 20 from sunup to midday rest, and then to sundown. Sometimes they grew quiet, like men tensed for danger. For the Trace crawled with outlaws, including some Indians flouting peace treaties. It was sometimes as difficult to get home with the profits as it had been to slip past the pirates at Cave-in-Rock on the downstream trek.

Snowstorms, floods, and violent winds also tormented the travelers. Horses

NATCHEZ TRACE *continued*

J. J. Audubon, Jefferson Davis, Aaron Burr, and Henry Clay.

Davy Crockett and Jim Bowie roamed this region. Abraham Lincoln avoided the walk, choosing to return by steamboat after taking a load of produce down the Mississippi to New Orleans in 1828—a three months' venture.

Thousands of unfamed people came, homeseekers from Virginia, Kentucky, Tennessee, and southern Ohio bound for western lands.

After weeks on the Trace, walkers gaped at the gracious homes and dainty belles of Natchez, rich river port. Some mansions like Ravenna, right, still raise slender pillars among the azaleas.

As the smoke of steam-driven river boats lured travelers, the Trace was almost forgotten. Only sections were used by local people. Now the National Park Service's Natchez Trace Parkway nears completion, closely following history's path.—S.H.

National Geographic References: ***Map***—"Historical Map of the United States" (paper, 50¢; fabric, $1.00).
Magazine—February, 1949, "History Repeats in Old Natchez" (75¢).

NATIONAL GEOGRAPHIC PHOTOGRAPHER WILLARD R. CULVER

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